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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,600	11/28/2001	David B. Geobegan	UBAT:019USD1	5233
25094	7590	03/31/2004	EXAMINER	
GRAY, CARY, WARE & FREIDENRICH LLP 1221 SOUTH MOPAC EXPRESSWAY SUITE 400 AUSTIN, TX 78746-6875			COLE, ELIZABETH M	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/997,600	GEOBEGAN ET AL.	
	Examiner	Art Unit	
	Elizabeth M Cole	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-13 and 17-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-13 and 17-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-11, 13, 16-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smalley et al , WO 98/39250 in view of Resasco et al, U.S. Patent No. 6,333,016 and "Crystalline ropes of metallic carbon nanotubes", Thess et al, Science, Vol. 273, pg 483.

Smalley discloses a method of making carbon nanotubes comprising the steps of supplying a solid phase target which may comprise carbon particles and one or more Group VI or Group VIII transition metals which act as a catalyst. The target is vaporized by a laser beam. Smalley discloses an apparatus for performing the method steps. See page 10, lines 4-29. Another method of making carbon nanotubes is to supply carbon vapor to the end of a carbon nanotube. See page 11, lines 11 through page 12, line 10. This method corresponds to the method set forth in claims 18-22, 25-28. The length of the carbon nanotubes is increased by this method. The length of the tube equates to the data which is collected in claim 27 which is used to determine if the process should be continued, (depending upon the length desired in the nanotube). A template may be employed to form a pattern of nanotubes. See page 36, lines 14-27. The material formed may be interwoven. Smalley differs from the claimed invention because Smalley does not disclose employing a method wherein growth is from the condensed phase matrix material instead of from vapor. Resasco et al teaches at col.

Art Unit: 1771

1, lines 49-62, that there are three known equivalent methods for synthesizing carbon nanotubes: laser ablation of carbon such as is disclosed in the Thess et al article, electric arc discharge of graphite rod and the chemical vapor deposition of hydrocarbons. Thess discloses applying a laser to a matrix material and then condensing. Thess discloses annealing. See page 1 of the article. Thess teaches that the resulting material is interwoven. See page 2. Therefore, it would have been obvious to have employed laser ablation of carbon which corresponds to the claimed method rather than the method of Smalley in order to form the carbon nanotubes. One of ordinary skill in the art would have been motivated to employ the alternative methods disclosed by Resasco and set forth by Thess instead of the method disclosed by Smalley because these were alternative known methods of forming the nanotubes. Smalley differs from the claimed invention because, although Smalley does disclose that carbon particles may be used to make up the target, Smalley does not disclose the size of the particles. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the appropriate particle size through the process of routine experimentation which produced the optimum growth of carbon nanorods.

3. Applicant's arguments with respect to claims 9-13, 38 have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1771

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (703) 872-9306.

Application/Control Number: 09/997,600

Page 5

Art Unit: 1771

A handwritten signature in black ink, appearing to read "Elizabeth M. Cole", with a stylized flourish at the end.

Elizabeth M. Cole
Primary Examiner
Art Unit 1771

e.m.c